

Amendments of the Claims:

A detailed listing of all claims in the application is presented below. This listing of claims will replace all prior versions, and listings, of claims in the application. All claims being currently amended are submitted with markings to indicate the changes that have been made relative to immediate prior version of the claims. The changes in any amended claim are being shown by strikethrough (for deleted matter) or underlined (for added matter).

1. (Cancelled)
2. (Cancelled)
3. (Cancelled)
4. (Cancelled)
5. (Cancelled)
6. (Cancelled)
7. (New) A system to treat diseases based on biological activities, comprising:
 - a) at least one biological activity sensing means which senses biological activity information issued by biological activities, and outputs a plurality of biosignals;
 - b) a calculating means which receives the biosignals, calculates a plurality of signals for stimulation of an organism using a convolution integral between at least one impulse response previously obtained from normal biological activities and the biosignals, and outputs the signals for stimulation of the organism; and
 - c) an organism stimulating means which receives the signals for stimulation of the organism, and stimulates the organism based on those signals.

8. (New) The system of claim 7, wherein the biological activity sensing means is selected from the group consisting of electrodes and pressure sensors.
9. (New) The system of claim 7, wherein the biosignals are selected from the group consisting of sympathetic nerve activities, parasympathetic nerve activities, blood flow, blood pressure, body temperature, electrocardiogram, electroencephalogram, and various biochemical markers.
10. (New) The system of claim 7, wherein the organism stimulating means stimulates in a manner selected from the group consisting of electrical stimulation; and stimulation with the use of devices for drug administration.
11. (New) The system of claim 7, wherein the calculating means comprises:
 - at least one amplifier to amplify the biosignal;
 - at least one analog-to-digital converter, to convert the biosignal from an analog signal to a digital signal; and
 - at least one analyzer to process data to calculate signals to be transferred to the organism stimulating means.
12. (New) A system to treat diseases based on biological activities, comprising:
 - a) at least one biological activity sensing means which senses biological activity information issued by biological activities, and outputs a plurality of biosignals;
 - b) a calculating means which receives the biosignals, calculates a plurality of signals for stimulation of an organism using a convolution integral between an impulse response previously obtained from normal biological activities and the biosignals, and outputs the signals for stimulation of the organism; and

c) an organism stimulating means which receives the signals for stimulation of the organism calculated by the calculating means, and stimulates the organism based on those signals;

wherein the calculating means includes discriminating means which determine whether the biosignals are caused by normal biological activities or by abnormal biological activities;

wherein the calculating means does not output the signals for stimulation of the organism when the biosignals are determined to be caused by normal biological activities; and

wherein the calculating means outputs the signals for stimulation of the organism when the biosignals are determined to be caused by abnormal biological activities.

13. (New) A cardiac pacing system based on biological activities, comprising:

a) at least one nerve activity sensing means which senses nerve activity of a cardiac sympathetic nerve and/or a vagal nerve, and outputs a plurality of nerve activity signals;

b) a calculating means which receives the nerve activity signals, calculates a plurality of pacing signals for a control of a heart rate by a convolution integral between an impulse response previously obtained from normal nerve activities and the nerve activity signals, and outputs the pacing signals; and

c) a pacing means which receives the pacing signals, and stimulates the heart based on the pacing signals such that heart rate is regulated.

14. (New) The system of claim 13, wherein the organism stimulating means is a cardiac pacemaker.

15. (New) A blood pressure regulating system, which uses a native regulation rule to estimate at least one nerve activity in response to blood pressure changes, comprising:
- a) at least one blood pressure sensing means which senses blood pressure and outputs a blood pressure signal;
 - b) a calculating means which receives the blood pressure signal, analyzes and processes the blood pressure signal to calculate a sympathetic nerve stimulation signal for a regulation of blood pressure by stimulation of a plurality of sympathetic nerve innervating vascular beds, and outputs the sympathetic nerve stimulation signal; and
 - c) a stimulating means which receives the sympathetic nerve stimulation signal, and stimulates the sympathetic nerve innervating vascular beds based on the sympathetic nerve stimulation signal such that blood pressure is regulated.
16. (New) The system of claim 15, wherein the biological activity sensing means is a pressure sensor.
17. (New) The system of claim 15 wherein a site for sympathetic nerve stimulation is selected from the group consisting of sympathetic ganglia; a surface of a spinal cord; and at least one site in a brain.
18. (New) A system to treat cardiac diseases based on biological activities, comprising:
- a) at least one cardiovascular activity sensing means which senses cardiovascular activity information issued by a cardiovascular system, and outputs a plurality of cardiovascular activity signals;
 - b) a calculating means which receives the cardiovascular activity signals, analyzes and processes the cardiovascular activity signals to calculate a plurality of nerve stimulation signals, and outputs the nerve stimulation signals; and

c) a nerve stimulating means which receives the nerve stimulation signals,
and stimulates a nerve based on the nerve stimulation signals.